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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/656,438

09/05/2003

Edward J. Seppi

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EXAMINER

THOMAS, COURTNEY D

ART UNIT

PAPER NUMBER

2882

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/656,438	<b>Applicant(s)</b> SEPPI ET AL.	
	<b>Examiner</b> Courtney Thomas	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-31,33-39,42-49 and 54-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-17,26-28,30,39,46,48,57,58 and 60 is/are allowed.
- 6) ☒ Claim(s) 1-13,18-25,31,33-39,45,47,49,54-56,59 and 61-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/27/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Allowable Subject Matter*

1. The indicated allowability of claims 1-13, 18-25, 31, 33-39 and 55-59 is withdrawn. New rejections follow below.

### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-13, 18-25, 31, 33-39 and 55-59 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In particular, independent claims 1, 18, 20, 21, 31 and 39 recite a series of steps directed to a determination method, but do not physically transform received data such that it results in a *useful, concrete and tangible result* (emphasis added) as required by 35 USC 101. The absence of such transformation suggests that a useful result achieved under the practical application requirement has not been met. For examples of physical transformations that result in useful utility, see MPEP 2106 sect II-A. [See also USPTO Interim Guidelines for Subject Matter Eligibility available at: <http://www.uspto.gov/go/og/2005/week47/patgupa.htm> or OG Notices 22 November 2005]. Claims 2-13, 19, 22-25, 33-38 and 55-59 are similarly rejected by virtue of their dependency on the aforementioned independent claims.

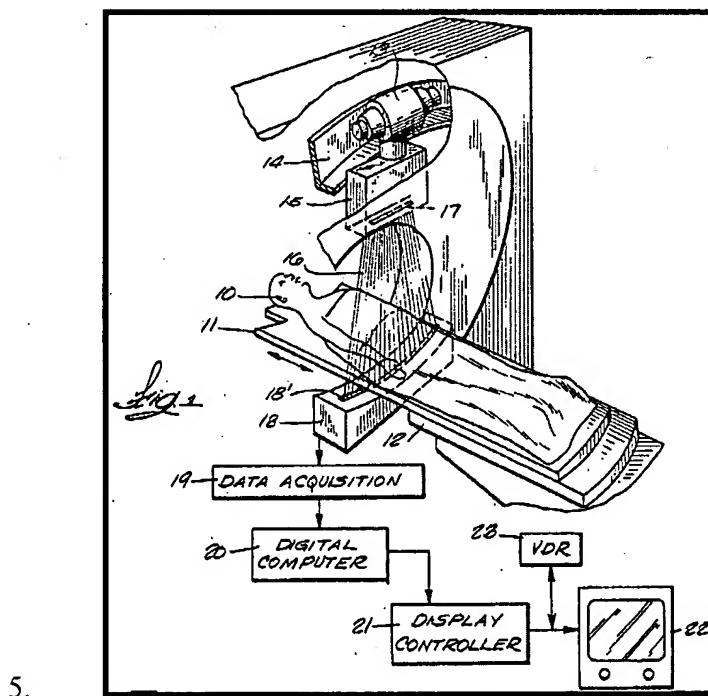
### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 45, 49 and 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (U.S. Patent 4,361,901) in view of Murthy (U.S. Patent 6,055,295).



[57]

**ABSTRACT**

X-ray pulses at two different photon energy levels are produced with an x-ray tube that has an adjustable resistor element in a circuit that connects the anode and filament of the tube to a high voltage supply. Two bias

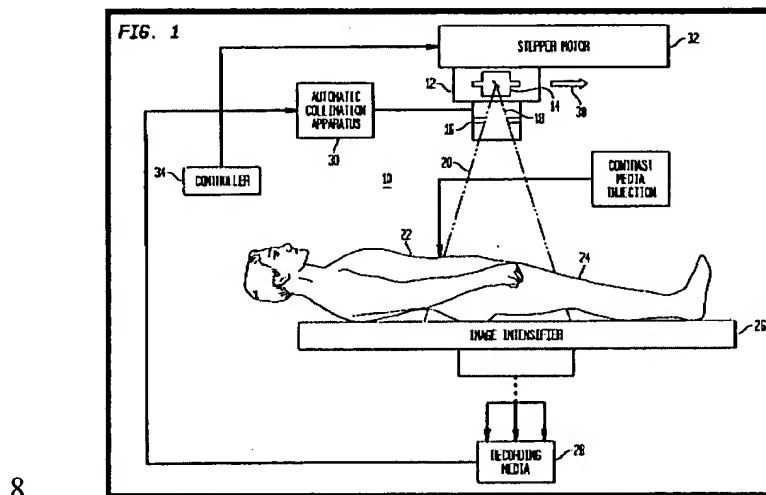
6.

Figure 1 (previous page) & Abstract (above) – Irradiation Apparatus – U.S. Patent 4,361,901 to Daniels et al.

7. As per claims 45, 49, 61, 62 and 63, Daniels et al. disclose an irradiation apparatus comprising: a platform (11); a first beam source (not visible in Fig. 1, but contained in housing 13) configured to generate a first radiation beam at a first intensity and a second beam at a

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second intensity (Abstract); a beam adjuster (15 – Examiner note: though not explicitly recited as being a multi-leaf collimator, artisans in radiography would recognize the presence of collimator 15 as teaching/suggesting the desirability of beam shaping via collimators such as multi-leaf collimators, as currently utilized in the art); and a projection detector (18). Daniels et al. do not explicitly disclose a control module coupled to the projection detector (18) and to the beam adjuster (15), wherein the control module is configured to adjust one or a combination of a shape, an intensity, and a direction of the second radiation beam.



9. Murthy teaches an imaging system where a collimator (column 3, lines 1-2) is connected to a detector so as to reduce the amount of primary intensity radiation reaching a detector plane (Abstract). By conforming to body and non-body regions, the control module attached to the collimator adjusts at least the shape of the radiation beam. This system also reduces scattered radiation and improves image quality (Columns 1-2). [Examiner note: the disclosed collimator (16, as shown in Fig. 1 above) also teaches that the collimator is configured to cover at least a portion of a body. One having ordinary skill in the radiation art would appreciate the aforementioned teaching as related to the use of a collimator in a radiation imaging/therapy

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system as a means for minimizing radiation exposure to healthy tissue and/ or allowing exposure to an area of interest, as is currently practiced (see also Figs. 3A, 4A, illustrating a region of interest of a body - not shown above) – see also MPEP 2144.]

10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the collimator and shape-changing control module as taught by Murthy in the device of Daniels et al. in order to accomplish the goal of reducing the amount of primary intensity radiation reaching the detector plane while also reducing scattered radiation and improving image quality as suggested by Murthy – (columns 1-2).

11. Claims 47 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (U.S. Patent 4,361,901) and Murthy (U.S. Patent 6,055,295) and further in view of Kapatoes et al. (U.S. Patent Application Publication 2002/0150207).

12. **As per claims 47 and 54**, Daniels et al. as modified above, do not explicitly disclose a control module as configured to develop a radiation treatment plan based on a first image or based on one or both of the first image and the second image.

13. Kapatoes et al. disclose a method consisting of developing a treatment plan based on first and second images of a subject (Abstract).

14. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the control module of Daniels et al., such that it is configured to develop a radiation treatment plan based on a first image or based on one or both of the first image and the second image. One would have been motivated to make such a modification for the purpose of fine tuning a treatment plan to more closely conform to features of a region, intended for radiation delivery as taught by Kapatoes et al (i.e. see Abstract).

*Allowable Subject Matter*

15. Claims 14-17, 27, 28, 46, 48, 57, 58 and 60 remain allowed as indicated in the Office Action mailed 05/01/06.

16. Claims 26, 29 and 30 remain allowed as indicated in the Office Action mailed 10/17/06.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Courtney Thomas  
Primary Examiner  
Art Unit 2882